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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
ALHIJA, SAIF A	

ART UNIT	PAPER NUMBER
2128	

MAIL DATE	DELIVERY MODE
04/30/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/812,935	OBA ET AL.	
	Examiner	Art Unit	
	SAIF A. ALHIJA	2128	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 January 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6 and 8-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6 and 8-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *31 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-6, and 8-10 have been presented for examination.

Claims 7 and 11 have been cancelled.

Claims 12-51 have been withdrawn in response to the restriction dated 4 June 2007.

Response to Arguments

2. Applicant's arguments filed 7 January 2009 have been fully considered but they are not persuasive.

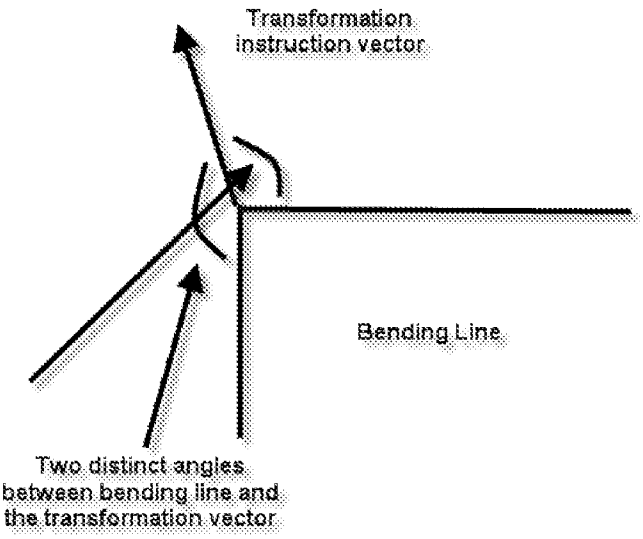
NON-PRIOR ART ARGUMENTS

i) Applicant argues the 101 rejections of claims 1-11. First Applicants are correct that a new standard is currently in use regarding 101, that being the machine-transformation test. In view of this the Examiner contends that the claims neither require a particular machine for execution nor do they result in a physical transformation. The transformation of a shape is not equivalent to a transformation of an actual article or thing. Further the claims do not recite a particular machine but rather a set of devices for input and processing which is insufficient to overcome the "particular machine" test. This is reinforced by the lack of detail as to what constitutes the transformation processing device in the specification, see page 13 line 15. Therefore the 101 rejections are **MAINTAINED**.

PRIOR ART ARGUMENTS

ii) Applicants argue that the reference does not disclose **"when the node is located on a single bending line of an article, the input device further receives an input of a predetermined angle, and when an angle formed by the transformation vector and the bending line is less than the predetermined angle the node is displaced in the extending direction of the bending line and by an amount corresponding to a component of the input transformation instruction vector in the extending direction of the bending line and when the angle formed by the transformation instruction vector and the bending line is equal to or greater than the predetermined angle, the node is displaced in accordance with the transformation instruction vector."** The Examiner appreciates Applicants attempt to clarify their claimed invention and the Examiner recalls discussing this claim limitation during the interview conducted with Applicants representative. However after further analysis the Examiner reached multiple interpretations of the claim limitation which would interfere with the intent of the claim language. Specifically, the claim now recites the input of a predetermined angle however the computations of the angle are unclear. More specifically, the claim recites the angle between the transformation instruction vector and

the bending line and the Examiner is unclear as to how this angle is determined since two angles would be formed. See example drawn by the Examiner below.



Further it is unclear what direction corresponds to the bending line. Is it the mid angle of the corner of the bending line? Due to these questions the Examiner contends that the broadest reasonable interpretation of the claims would still be rendered anticipatory by the transformation of Borrell, for example see Borrel Figure 12. Applicants are encouraged to clarify the determination of the angles and the transformation with respect to the node on a bending line. In view of these ambiguities the 102 rejection is currently **MAINTAINED**.

EXAMINERS NOTE

iii) Examiner has cited particular columns and line numbers in the references applied to the claims for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in their entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner.

iv) The Examiner respectfully requests, in the event the Applicants choose to amend or add new claims, that such claims and their limitations be directly mapped to the specification, which provides support for the subject matter. This will assist in expediting compact prosecution.

v) Further, the Examiner respectfully encourages Applicants to direct the specificity of their response with regards to this office action to the broadest reasonable interpretation of the claims as presented. This will avoid issues that would delay prosecution such as limitations not explicitly presented in the claims, intended use statements that carry no patentable weight, mere allegations of patentability, and novelty that is not clearly expressed.

PRIORITY

3. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d).

Claim Rejections – 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. **Claims 1-6, and 8-10 are rejected** under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

i) The claims appear to be directed to a CAD environment however as presented they appear to be merely represent an abstract idea as well as mere data manipulation.

Appropriate correction is required.

All claims dependent upon a rejected base claim are rejected by virtue of their dependency.

Claim Rejections – 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-6, and 8-10 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by **Borrel et al. "Deformation of n-dimensional objects."**

Regarding Claim 1:

The reference discloses A design shape generating apparatus for generating a new design shape of an article by performing a shape transformation process with respect to a design shape of the article which has been already generated, the apparatus comprising:

an input device for receiving transformation instructions from an operator; **(Page 351, Introduction, interactive editing)** and

a transformation processing device for performing an operation of the design shape which has been already generated in accordance with the transformation instructions which are input, **(Page 351, Introduction, shape-dependent transformations)** wherein

the input device receives input for designation of a shape attribute of the article between of a transformation region for which the shape transformation process is to be performed and a maintaining region which maintains its shape, and input of a transformation instruction vector which is defined by a direction and an amount of transformation with respect to the article, **(Interpreted to be shape deformation. Section 2.1-2.2, and 2.3.1-2.3.3)**

the transformation processing device is configured to not displace a node located at a boundary between the transformation region and the maintaining region,

subdivide the transformation region into a plurality of shape elements; **(Section 3.4.1, Right Column, Two Deformations starting with "This function f can....") and**

displace a node defining the shape of the shape elements and belonging only to the transformation region in accordance with the input transformation instruction vector as follows **(Section 2.1, point displacement. Section 2.2, intermediate space)**

when the node is located on a single bending line of an article, the input device further receives an input of a predetermined angle, and when an angle formed by the transformation vector and the bending line is less than the predetermined angle the node is displaced in the extending direction of the bending line and by an amount corresponding to a component of the input transformation instruction vector **(e.g. merely shape deformation and transformation)** in the extending direction of the bending line and when the angle formed by the transformation instruction vector and the bending line is equal to or greater than the predetermined angle, the node is displaced in accordance with the transformation instruction vector, **(Figure 6. With respect to the type of shape transformation the reference discloses in Figure 6 and in section 3.4.1 three dimensional deformations. A single bending line, multiple bending lines, and no bending lines can be seen in the Cylinder, Cone, Pyramid, Sphere, etc shapes of Figure 6 which are the resultant of the deformations of the cube of Figure 6.)**

when a node is located on the intersection of a plurality of bending lines of an article, the node is displaced in the extending direction of the bending line which forms the smallest angle **(e.g. Section 3.5.1 B-Spline)** with respect to the transformation vector and by an amount corresponding to a component of the input transformation vector in the extending direction of the bending line **(e.g. extension of a corner. Figure 6)**, and

when a node is not located on the bending line of a article, the node is displaced in accordance with a vector obtained by projecting the transformation instruction vector onto an extension plane of an article shape plane at that node. **(Section 3.4.1, Right Column, Two Deformations and corresponding description)**

Regarding Claim 2:

The reference discloses An apparatus according to claim 1, wherein the shape of the article which has already been generated is composed of a base shape and an auxiliary shape, and the transformation processing device performs a transformation process only with respect to the base shape thereby generating a new base shape, and attaches the auxiliary shape to the new base shape by an auxiliary shape adding device at a predetermined position of the new base shape. **(Section 5.2, shape adjustment)**

Regarding Claim 3:

The reference discloses An apparatus according to claim 1, wherein the input received by the input device from the operator includes instructions for an operative node of the transformation instruction vector. **(Section 4.3.2.1, user modification utilizing vectors)**

Regarding Claim 4:

The reference discloses An apparatus according to claim 3, wherein the instructions for an operative node of the transformation instruction vector include point designation concerning a single node, line designation concerning a line connecting nodes, and plane designation concerning a plane enclosed by nodes. **(Page 351, Introduction, 2D, 3D, and 4D)**

Regarding Claim 5:

The reference discloses A design shape generating method for generating new design shape of an article by performing a shape transformation process with respect to design shape of the article which has been already generated, the method comprising:

a region attribute input step of receiving, by an input device from an operator, input for designating a shape attribute of the article between a transformation region for which the shape transformation process is to be performed and a maintaining region which maintains its shape; **(Page 351, Introduction, interactive editing and shape-dependent transformations)**

a transformation instruction input step of receiving, by an input device from the operator, a transformation instruction vector which is defined by a direction and an amount of transformation with respect to the article, **(Interpreted to be shape deformation. Section 2.1-2.2, and 2.3.1-2.3.3)** and

a shape transformation processing step of performing by a transformation processing device a displacement process with respect to a node of a shape element in accordance with the transformation instruction vector which is input, the shape transformation processing step including: **(Interpreted to be shape deformation. Section 2.1-2.2, and 2.3.1-2.3.3)**

not displacing the node when the node is located at a boundary between the transformation region and the maintaining region **(Section 2.1, point displacement. Section 2.2, intermediate space)**

displacing the node in accordance with the input transformation instruction vector as follows then the node belongs only to the transformation region by **(Section 2.1, point displacement. Section 2.2, intermediate space)**

when the node is located on a single bending line of an article **(e.g. 2D, 3D, and 4d shapes)** ,the transformation instruction input step further includes receiving an input of a predetermined angle, and when an angle formed by the transformation instruction vector and the bending line is less than the predetermined angle the node is displaced in an extending direction of the bending line and by an amount corresponding to a component of the input transformation instruction vector **(e.g. merely shape deformation and transformation)** in the extending direction of the bending line and when the angle formed by the transformation instruction vector and the bending line is equal to or greater than the predetermined angle, the node is displaced in accordance with the transformation instruction vector, **(Figure 6. With respect to the type of shape transformation the reference discloses in Figure 6 and in section 3.4.1 three dimensional deformations. A single bending line, multiple bending lines, and no bending lines can be seen in the Cylinder, Cone, Pyramid, Sphere, etc shapes of Figure 6 which are the resultant of the deformations of the cube of Figure 6.)**

when a node is located on the intersection of a plurality of bending lines of an article, the node is displaced in the extending direction of the bending line which forms the smallest angle **(e.g. Section 3.5.1 B-Spline)** with respect to the transformation vector and by an amount corresponding to a component of the input transformation vector in the extending direction of the bending line **(e.g. extension of a corner)**, and

when a node is not located on the bending line of a article, the node is displaced in accordance with a vector obtained by projecting the transformation instruction vector onto an extension plane of an article shape plane at that node. **(Section 3.4.1, Right Column, Two Deformations and corresponding description)**

Regarding Claim 6:

The reference discloses A method according to claim 5, wherein the shape of the article which has already been generated is composed of a base shape and an auxiliary shape, and a transformation process is performed only with respect to the base shape, thereby generating a new base shape and the auxiliary shape is attached to the new

base shape by an auxiliary shape adding device at a predetermined position of the new base shape. **(Section 5.2, shape adjustment)**

Regarding Claim 8:

The reference discloses A method according to claim 5, wherein in the transformation instruction input step, the input received by the input device from the operator includes instructions for an operative node of the transformation instruction vector. **(Section 4.3.2.1, user modification utilizing vectors)**

Regarding Claim 9:

The reference discloses A method according to claim 8, wherein the instructions for the operative node of the transformation instruction vector include point designation concerning a single node, line designation concerning a line connecting nodes, and plane designation concerning a plane enclosed by nodes. **(Page 351, Introduction, 2D, 3D, and 4D)**

Regarding Claim 10:

The reference discloses A method according to claim 5, wherein in the shape transformation processing step, when an edge line connecting nodes of the transformation region is to extend beyond a node belonging to the boundary between the maintaining region and the transformation region as a result of node displacement in accordance with the transformation instruction vector input by the operator,

(1) the transformation instruction vector input by the operator is divided into a first transformation instruction vector which terminates where the edge line connecting nodes in the transformation region reaches a node in the maintaining region and a second transformation instruction vector which starts where the edge line connecting the nodes in the transformation region reaches the node in the maintaining region; **(Interpreted to be shape transformation within a shape. Section 3.4.1, Right Column, Two Deformations and corresponding description. See also Section 2.2, intermediate space)**

(2) a shape transformation process in accordance with the first transformation instruction vector is performed only with respect to the transformation region which is designated by the operator; **(Interpreted to be**

shape deformation based on user interaction. Section 3.4.1, Right Column, Two Deformations and corresponding description. See also Section 4.3.2.1, user modification utilizing vectors)

(3) the attribute of the maintaining region including the node which contacts the edge line of the transformation region is reallocated as the attribute of the transformation region; **(Interpreted to be shape transformation within a shape. Section 3.4.1, Right Column, Two Deformations and corresponding description. See also Section 2.2, intermediate space. See also Section 4.3.2.1, user modification utilizing vectors)**

and

(4) a shape transformation process in accordance with the second transformation instruction vector is performed with respect to the transformation region, including the reallocated transformation region, of the article shape which has been subjected to the transformation process in accordance with the first transformation instruction vector. **(Interpreted to be shape deformation based on user interaction. Section 3.4.1, Right Column, Two Deformations and corresponding description)**

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. All Claims are rejected.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to SAIF A. ALHIJA whose telephone number is (571)272-8635. The examiner can normally be reached on M-F, 11:00-7:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamini Shah can be reached on (571) 272-2279. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300. *Informal or draft communication, please label PROPOSED or DRAFT*, can be additionally sent to the Examiners fax phone number, (571) 273-8635.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SAA

April 21, 2009

/Hugh Jones/

Primary Examiner, Art Unit 2128